Examining the Validity and Reliability of e-Lifestyles Scale in the Malaysian Context: Preliminary Results

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Abstract

This study sought to construct and validate e-lifestyle scale that would capture for the online marketers a more holistic picture of people's lifestyles. Thus, the purpose of this study is to examine the goodness of measure (validity and reliability) of e-lifestyle scale based on Activities, Interests and Opinions (AIO). The respondents in this study are online shoppers who have purchased a product or service through online shopping. In this study, data collection was carried out via an online survey. Results of this study show that the 30 AIO items of the e-lifestyle scale were grouped into four distinct components. These components represented four principal factors that significantly influence and shape individual e-lifestyles. Findings of this study provide e-marketers with insights into how knowledge about lifestyle factors can be integrated into marketing and advertising strategies particularly in online shopping context.

Keywords:

Lifestyles, Internet, e-Lifestyle, Online Shopping, AIO

1. Introduction

The emergence of the Internet technology has had a profound and pervasive impact in many ways on our society, for example, the Internet has impacted our businesses, families, culture, education, entertainment and almost every area of one's life (Yu, 2011). The Internet has significantly impacted the lifestyle of everyone; changing the way people work, live and learn (Gates, 2000). One of the biggest changes that people slowly adapted into their lifestyle is how they make their purchases as these days online shopping has become an alternative to conventional shopping (Wang et al., 2006). Much research efforts and attention have been invested in studying consumer lifestyle in relation to many important issues. Previous consumer lifestyle studies concentrated mostly in relation to service quality (Thompson & Kaminski, 1993), ethnocentrism (Kucukemiroglu, 1999; Kaynak & Kara, 2001; Kucukemiroglu, et al., 2006; Spillan et al., 2007), hospitality (Lin, 2003), marketing (Swinyard & Smith, 2003), housing (Lee, 2005), sports (Chen, 2007) and technology adoption (Kim et al., 2002; Lee et al., 2009). However, not much has been done on validation of the measurement used (with the exception of Yu, 2011).

Measurement of consumer lifestyles by Wells and Tigert (1971) and Mitchell (1981) has been widely cited, used, and have had a major influence in shaping the understanding of consumer behaviour. However, earlier research has argued that the existing lifestyle instruments mostly developed in the 1970s and 1980s may not really portray the current lifestyles of time-oriented and technology-oriented consumers (Lin, 2003; Swinyard and Smith, 2003; Brengman et al., 2005; Allred et al., 2006, Yu, 2011) due to the fact that the lifestyles of every consumer are very complex and dynamic as it may change over time (Andreasen, 1984), are not consistent (Tai & Tam, 1996) and subsequently may influence their behaviour (Kucukemiroglu, et al., 2006; Lin, 2007) online.

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Based on the idea that "the more you know and understand about consumers, the more effectively you can communicate and market to them" (Plummer, 1974; Brengman et al., 2005), the aims of this paper is to assess the validity (content, construct, convergent and discriminant) and reliability of previous studies (i.e. Krishnan & Murugan, 2007; Lee et al., 2009; Swinyard & Smith, 2003; Yu, 2011) measures of consumer lifestyles and, thereby, to add clarity to the operationalisation of this construct. Accordingly, the following section presents the review of the literature on consumer lifestyles followed by the methodology employed. The findings are discussed next followed by the summary and conclusions of the findings.

2. Literature Review

e-Lifestyles

The flourishing aspect of technology especially the Internet nowadays has changed the consumers' purchasing habits and lifestyles respectively. Therefore, to respond to these changes, marketing researchers in particular, have started to investigate the effects of consumer lifestyle on purchasing behavior on the internet. For example, Bellman et al. (1999) examined the relationship among demographics, personal characteristics, and attitudes towards online shopping. They found that people who have a more wired lifestyle (e.g. they receive a large number of email messages every day, they spend more hours online, they use the Internet for most of their other activities, they turn to the Internet to search for product information and they like to buy products and services online) and who are more time-constrained tend to buy online more frequently. They also proposed that people living a wired lifestyle patronize e-stores spontaneously. Similarly, Kim et al. (2000) in their study for instance, found that customer lifestyles directly and indirectly affect the customers' purchasing behavior on the internet.

In previous studies, while examining internet oriented lifestyles of both internet shoppers and non-shoppers to see whether there are any discrete market segments that seek different benefits from the internet, previous researchers have identified some differences between online shoppers and online non-shoppers with respect to their demographic and psychographic profile. According to these studies, most online shoppers are older, wealthier, better education have higher computer literacy and spend more time on the internet, working professionals, competent internet users and find online shopping to be easier and more entertaining (Bellman et al., 1999; Donthu & Garcia, 1999; Allred et al., 2006;). Furthermore, several studies have found that men are likely than women to purchase products and services online (Korgaonkar & Wolin, 1999; Slyke et al., 2002). Other recent studies however revealed different findings. Online shoppers are increasingly found in all types of consumers segments, including younger people and women as well as lower income group (Mutum & Ghazali, 2006; Swinyard & Smith, 2003).This profile, however, is changing, particularly with the rise of the cohort regarded as the Net Generation (Napoli & Ewing, 2001). Bellman et al. (1999) argued that even though demographics appeared to play an important role in determining whether people use the Internet, once people are online, demographics do not seem to be key factors affecting purchase decisions or shopping behaviour. This has been supported by Gehrt and Shim (1998) that consumers' shopping activity, their level of interest, and opinions vary depending on their lifestyles.

Measurement of Lifestyles

Lifestyle measures can be macro and reflect how individuals live in general or micro and describe their attitudes and behaviours with respect to a specific product category or activity (Hawkins et al., 2001). According to Lin (2003), there are four methodologies available for lifestyle analysis, such as the Rokeach Value Survey (RVS), the List of Value (LOV), the Value, Attitude and Life Styles (VALS) and the Activities, Interests and Opinions (AIO). RVS is an instrument to measure human values, introduced by Rokeach in 1973, which consists of 18 terminal values and 18 instrumental values (Kamakura & Novak, 1992). The LOV, on the other hand is an alternative value measurement scale and procedure that has been developed by Kahle in 1983 (Beatty et al., 1985). According to Kamakura and Novak (1992), the LOV is a condensed measurement instrument that only includes terminal values. Anandan et al. (2006) on the other hand, describe VALS as a way of viewing people

on the basis of their attitudes, needs, wants, beliefs and demographics. Although to date no conclusive empirical evidence has supported which instrument is the best in assessing individual lifestyles (Kahle et al., 1986), literature review reveals that AIO is much popular than RVS, LOV and VALS. This has been supported by Hur et al. (2010) and Yu (2011), that the most well known and widely used measurement approach to lifestyle related studies was the AIO approach developed by Wells and Tigert in 1971. Hence, in this study, the AIO approach was used. This is due to the fact that among the consumer lifestyle analysis methods, the AIO is the most recent and widely used to analyzed consumer behavior (Hur et al., 2010; Yu, 2011). AIO rating statements measure consumers' patterns of behavior in terms of their routine activities, interests and opinions (Gonzalez & Bello, 2002; Michman et al., 2003). Hence, in order to better understand the lifestyle of consumers, previous researchers have used this approach (Hur et al., 2010; Kaynak & Kara, 2001; Yu, 2011).

Activities, Interests and Opinions (AIO)

In an initial AIO study profiling individual lifestyles, Wells and Tigert (1971) defined activities as actual observable behaviors, interests as the continuous paying of attention to certain objects, and opinions as responses to specific events. Since then, AIO-based studies have extensively conducted to help marketers deliver specific services/products to different targeted segments (Wells and Tigert, 1971; Plummer, 1974; Gutman, 1982; Thompson and Kaminski, 1993; Lin, 2003; Swinyard and Smith, 2003; Brunso et al., 2004; Brengman et al., 2005; Hsu and Chang, 2008; Hur et al., 2010). Literature review indicates the current widely used AIO instrument, developed by Plummer (Plummer, 1974), consists of 300 rating statements.

3. Research Methodology

The research task in this study was to assess the goodness of measure (validity and reliability) of the lifestyle measurement. In this study, the Yahoo Groups that are listed in Malaysia directory were used as a sample. An online survey was administered to the members of these Yahoo Group via the moderators. A total of 678 out of 11414 selected Yahoo Group members completed the survey, implying a response rate of 5.94%. The response rate in this study is also sufficient in comparison to that of previous researches using similar methods (e.g. Ma'ruf et al., (2005), with a 2.7% response rate, and Metani (2009), with a 3.8% response rate). For the purpose of data analysis and hypotheses testing, the data was analyzed using the statistical package for social sciences (SPSS). In this study, AIO lifestyle inventory was developed based on 30 activities, interests and opinions items adapted from previous researches (i.e. Krishnan & Murugan, 2007; Lee et al., 2009; Swinyard & Smith, 2003; Yu, 2011) on consumers' buying behaviour. A seven-point scale was used for each item.

4. Results and Findings

4.1 Sample characteristics

Majority of the respondents were single (58.3%) and young, falling in the 26 to 30 age group (24%). Within this sample, female respondents (57.8 %) slightly outnumbered the male respondents. A great number of respondents had a university degree or higher education with a bachelor and Master's degree, about 43% and 29% respectively. With regards to occupation, students and executive/professional made up the majority of the respondents representing 40% and 43% of the total respectively. When monthly personal income was examined, the majority of the respondents (34.5%) were in the RM2501 and RM4500 income group. In terms of ethnic group, the Malays (38.9%) and the Chinese (38.2) made up the largest ethnic group of respondents. This study also found that the majority of the respondents (76%) have been using the Internet for more than 5 years and 52% of them spent more than 5 hours per day on using the Internet. In this study, 47% of the respondents shop online once a month and the respondents also indicated that they would mostly like to shop online for "travel reservations and ticketing" (37%), "fashion" (30%), "books" (14%), "music cds/dvd/videotape" (8%), "hotel reservations" (7%) and "sport equipment" (4%).

4.1 Testing the Goodness of Measure for the Lifestyle Construct

Content Validity

Content validity refers to the extent of measurements have the sufficient set of dimensions and elements to measure and represent the supposed to measure concept (Cooper & Schindler, 2001). Furthermore, content validity refers to the adequacy with which a specific domain of content has been sampled (Nunally, 1978). In this study, content validity of the questionnaire has been established through the literature review.

Construct Validity

According to Cooper and Schindler (2001), construct validity was assessed through the convergence and divergence of the scales. In this study, an exploratory factor analysis with an orthogonal rotation of varimax was used to evaluate the construct validity of scores from the instrument. In turn, to evaluate the construct validity, we performed a principal components analysis on the set of 30 items of the AIO scale. The results of this analysis are summarized in Table 1. An exploratory principal component factor analysis was performed in order to assess the validity of the consumer lifestyles construct and to determine the potential groupings of lifestyle items. In this study, consumer lifestyle was measured using 30 AIO items. Factor analysis for 30 AIO items was performed. Initial results of the analysis on the 30 AIO items revealed that 15 items had either low communality value (less than .50) or low factor loading (less than .50). According to Hair et al., (2006), for acceptable construct validity, it is proposed that each item should have a minimum factor loading of .50 on its hypothesized construct. This norm was met for 15 out of 30 items for the four constructs (see Table 1). Factor analysis was subsequently performed on the remaining 15 AIO items. Results of the varimax rotated analysis demonstrated the presence of four factors with eigenvalues exceeding one, explaining 71.56% of the total variance. According to the above criteria, this study extracted four factors from 15 items out of 30 items, displayed in Table 1.

The computed EFA solutions indicated Factor 1 (F1) contains six items. The factor loadings for this factor ranged from .62 to .88, with an eigenvalue of 4.40 and accounted for 26.30% of the total variance. This factor consisted of six items reflected online shoppers' interest toward online shopping with regard to (1) the ability to shop the newest products online, (2) the enjoyment of using online shopping, (3) the sense of achievement obtained from online shopping, (4) the lowest products' prices offered on the Internet, (5) the delivery of online products to consumers' home and (6) the curiosity in discovering how to shop online. Accordingly, F1's content reflects that online shopper's lifestyles are significantly and impacted and shaped by their interests toward the pleasure of online activities, particularly in online shopping. Therefore, F1 was labelled as "pleasure-driven e-lifestyle". Factor 2 (F2) was represented by five items relating to online shoppers' daily activities. The five items had factor loadings between .70 and .78, with eigenvalues of 2.82 and accounted for 20.66% of the total variance. This factor depicted the online shoppers' activities during their spare time. The five items of online shoppers' activities are (1) prefer those activities that make them stand out, (2) active participation in voluntary activities, (3) review products on the Internet, (4) involved in many social activities outside their house and (5) preview products on the Internet. Consequently, F2 was labeled as "socially-driven e-lifestyle". Factor 3 (F3) comprised of two items relating to online shoppers' view of uneasiness toward online shopping activities. The two items of online shoppers' view are; (1) difficulties in judging the quality of merchandise on the Internet, and (2) return merchandise bought on-line is a real hassle. Factor loadings for each items ranging from .94 to .95, with eigenvalues of 2.26 and accounted for 14.55% of the total variance in the data. Hence, the factor was labelled as "concern-driven e-lifestyle". Finally, factor 4 (F4) also contains two items reflecting online shoppers' interest toward online shopping activities. These two items are; (1) I stay updated as to the latest development in online products and (2) I frequently spend a lot of time involved with online shopping. Factor loadings for each items ranging from .70 to .84, with eigenvalues of 1.26 and accounted for 10.05% of the total variance in the data. Therefore, the content of F4 was labeled as "interest-driven e-lifestyle".

Table 1: Factor Analysis Results for e-Lifestyles based on AIO

Items	F1	F2	F3	F4
Factor 1: Pleasure-driven e-lifestyle				
Being able to shop the newest products via online shopping makes me happy.	**0.88**			
Using online shopping really give me a lot of fun.	**0.86**			
Being able to shop online gives me a sense of achievement	**0.79**			
I would shop on the Internet (more) if the prices were lower.	**0.73**			
I like having products delivered to me at home.	**0.70**			
I am very interested in discovering how to shop online.	**0.62**			
Factor 2: Socially-driven e-lifestyle				
I always prefer those activities that make me stand out.		**0.78**		
I enjoy active participation in voluntary activities.		**0.77**		
I frequently go to the Internet for product reviews.		**0.76**		
I frequently involved in many social activities outside the house.		**0.72**		
I frequently go to the Internet to preview products.		**0.70**		
Factor 3: Concern-driven e-lifestyle				
It's hard to judge the quality of merchandise on the Internet.			**0.95**	
It would be a real hassle to return merchandise bought on-line.			**0.94**	
Factor 4: Interest-driven e-lifestyle				
I stay updated as to the latest development in online products.				**0.84**
I frequently spend a lot of time involved with online shopping.				**0.70**
Eigenvalues	4.40	2.82	2.26	1.26
Percentage Variance Explained	26.30	20.66	14.55	10.05
Reliability (Cronbach Alpha)	0.86	0.82	0.96	0.64
Mean	5.53	5.33	5.23	4.85
Standard Deviation	0.98	1.06	1.48	1.33

The results of descriptive analysis showed that three dimensions of consumer lifestyles (pleasure-driven e-lifestyle, socially-driven e-lifestyle, and concern-driven e-lifestyle) were greatly involved with online shopping. Meanwhile, the other dimension of consumer lifestyle, namely interest-driven e-lifestyle, was perceived to be moderately involved with online shopping (Table 1).

Convergent Validity

Further to the construct validity test using the factor analysis (between scales) another factor analysis but this time using the within scale was utilized to test the convergent validity. According to Wang and Wang (2009) convergent validity refers to the extent to which multiple items of a construct agree with one another. Convergent validity is established when items all fall into 1 factor as theorized. Convergent validity was carried out through a within factor, factor analysis in order to obtain a more in-depth judgement of the dimensionality of the construct under study (Hair et al, 2006). All the four factors displayed unidimensionality with Pleasure-driven, KMO was 0.86 explaining 66 percent of the variation; Socially-driven, KMO was 0.61 explaining 63 percent of the variation; Concern-driven, KMO was 0.50 explaining 96 percent of the variation; and lastly Interest-driven, KMO was 0.50 explaining 74 percent of the variation. Thus, the analysis provided evidence of convergent validity.

Discriminant Validity

Further validation of the scale was done by testing the e-lifestyle factors for discriminant validity. Discriminant validity refers to the extent to which items of different constructs are distinct (Wang & Wang, 2009; Farrell & Rudd, 2009). Discriminant validity can be measured through the use of variance extracted test (Yu, 2011). Accordingly, discriminant validity can be assessed by comparing the average variance extracted of each construct with the shared variance between constructs (Farrell & Rudd, 2009). As mentioned by Farrell (2010), shared variance is the amount of variance that a construct is able to explain in another construct. It is represented by the square of the correlation between any two constructs. For instance, "if the correlation between two constructs, x_1 and x_2, is 0.6, then the shared variance between x_1 and x_2 is 0.36" (Farrell, 2010, p. 324). Hence, according to Hair et al., (2006), if independent variables are correlated, they share some of their predictive power over dependent variables. Therefore, the inspection of the correlation matrix between latent constructs can often identify potential shared variance issues (Farrell, 2010). For discriminant validity to be supported, Hair et al. (2006, p. 778) noted that "the variance extracted estimates should be greater than the squared correlation estimate". In this study, a correlation analysis was done on the eight factors generated and the results are presented in Table 2. All the four factors are not perfectly correlated where their correlation coefficients range between 0 and 1. This finding suggests that the e-lifestyles factors have discriminant validity.

Table 2: Results of the Correlation Analysis and Cronbach Alpha

Factors	1	2	3	4
1	(0.86)			
2	.188**	(0.82)		
3	0.028	0.058	(0.96)	
4	.255**	.284**	-.247**	(0.64)

Note: P*< 0.05, p**< 0.01

Values in the diagonal are the Cronbach Alpha values

1=pleasure-driven 2=socially-driven, 3=concern-driven, 4=interest-driven,

Nomological Validity

According to Lastovicka and Bonfield (1980), nomological validity refers to the ability of a construct to predict measures of other constructs within a system of related constructs. Hence, nomological validity in this study can be assessed by the correlation analysis of independent variables and the dependent variable (Table 3). Because Table 3 displays several interrelationships among and between these constructs to be significant, the nomological validity of the developed scale is empirically supported.

Table 3: Results of the Correlation Analysis between Independent Variables and Dependent Variable

Variables	1	2	3	4	5
1	(0.86)				
2	.188**	(0.82)			
3	0.028	0.058	(0.96)		
4	.255**	.284**	-.247**	(0.64)	
5	.523**	.138**	0.003	.209**	(0.93)

Note. P*< 0.05, p**< 0.01

Values in the diagonal are the Cronbach Alpha values

1=pleasure-driven 2=socially-driven, 3=concern-driven, 4=interest-driven, 5=continuance intention

Reliability

In this study, reliability analysis was carried out to determine the internal consistency of a scale used in the study by extending it to a variable or set of variables which are consistent in what it intended to measure. In other words, the reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of a measure (Hair et al., 2006; Sekaran, 2003). The commonly used indicator to examine the reliability for each measure is the Cronbach's alpha coefficient. Hair et al., (2006) suggested that the alpha value of a scale should be above .70. While Sekaran (2000) proposed that a minimum reliability level of .60 is acceptable. Therefore, this study follows the minimum acceptable level of reliability as suggested by Sekaran (2000). Hence, the four corresponding alpha values are 0.86, 0.82, 0.96, and 0.64, for pleasure-driven e-lifestyle, socially-driven e-lifestyle, concern-driven e-lifestyle and interest-driven e-lifestyle (Table 1). Thus, it can be concluded that these measures possess sufficient reliability.

5 Discussions and Conclusion

The acts of measurement are unavoidable, whether in science or in social works. Thus, examining the validity and reliability of a measurement is crucial for researchers since misinterpretation could cause invalid findings. This study is therefore aims to test the dimensionality of lifestyle scale that has been predominantly used in Western culture to the Malaysian context. To a certain extent we have accomplished that by getting 30 AIO items of lifestyle instrument which is capable of explaining sufficient variation in the construct being measured. Preliminary results demonstrated a valid (content, construct, convergent, discriminant and nomological) as well as reliable four dimension scales for measuring consumer lifestyles.

Limitations exist in every study and this research leaves room for future improvements. Initially, the sampling technique used in this study was purposive sampling. Purposive sampling allows the researcher to employ his or her own "expert" judgment about who to include in the sample frame. Hence, this study only focuses on online shoppers. Future research could select respondents by using stratified random sampling to reflect all demographics' distribution of the Malaysian population to examine and improve the reliability and validity of the e-lifestyle scale. Furthermore, because a great deal of research underlying general lifestyle instruments has been conducted in various fields during the past few decades, the relationships among general lifestyle, consuming needs, and purchase behaviour have been comprehensively emphasized. In contrast, the relationships among individual e-lifestyle, consuming needs, and purchase behaviour in other e-services context have been not comprehensively examined. Future studies could apply the e-lifestyle scale to different fields (i.e. online banking, e-learning, and mobile shopping).

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